REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-4 are presently pending in this case. Claim 4 is withdrawn. Claims 1-3 are amended by the present amendment. As amended Claims 1-3 are supported by the original disclosure,[1] no new matter is added.

In the outstanding Official Action, the drawings were objected to; Claims 1-3 were objected to; Claims 1-3 were rejected under 35 U.S.C. §112, first paragraph; Claims 1-3 were rejected under 35 U.S.C. §112, second paragraph; and Claims 1-3 were rejected under 35 U.S.C. §102(b) as anticipated by Wettstein (U.S. Patent No. 1,083,645).

With regard to the objection to drawings, amended Figures 1 and 2 were provided with the response filed June 18, 2009. It is respectfully submitted that amended Figures 1 and 2 show all the features of the amended claims. In particular, Figure 1 shows a single slit 14 in each of overlapping virtual regions 13 and adjacent slits 14 as defined in Claim 1. Accordingly, the objection to the drawings is believed to be overcome.

With regard to the objection to Claims 1-3, Claims 1 and 3 are amended to correct the noted informalities. Accordingly, the objection to Claims 1-3 is believed to be overcome.

With regard to the rejection of Claims 1-3 under 35 U.S.C. §112, first paragraph, Claim 1 is amended to recite that a slit is provided in each of overlapping virtual regions, and a minimum neighborhood distance between adjacent slits is equal to or more than 0.05 r. It is respectfully submitted that these features are supported at least by Figures 1 and 2. Accordingly, Claims 1-3 are in compliance with all requirements under 35 U.S.C. §112, first paragraph.

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[1]See, e.g., Figures 1 and 2 and the original claims.

With regard to the rejection of Claims 1-3 under 35 U.S.C. §112, second paragraph,

Claims 1 and 2 are amended to correct the noted informalities. Accordingly, Claims 1-3 are

in compliance with all requirements under 35 U.S.C. §112, second paragraph.

Claim 1 recites in part:

> a plurality of virtual regions so formed as to be
> surrounded by two radius lines extending from a rotation center
> of a disc-shaped base metal and two concentric circles on the
> base metal disposed around the rotation center continuously in
> a circumferential direction on the disc-shaped base metal and
> ends in a circumferential direction of the virtual regions which
> overlap with each other, while a single slit is provided in each
> one of the virtual regions so as to make contact with all of the
> two radius lines and the two concentric circles,
> wherein a central angle formed by the two radius lines
> is equal to or less than 90°;
> the virtual regions are 4 to 24 in number;
> *a central concentric circle located in a center of an*
> *interval of the two concentric circles forming the virtual*
> *region is in a range of 0.6 r to 0.8 r with respect to the*
> *rotation center of the base metal when a maximum gullet*
> *bottom radius of the base metal is r;*
> *an overlapping of the virtual regions continuously*
> *adjoining each other is in a range of 0° to 12° in terms of a*
> *central angle around the rotation center;*
> *a minimum distance between adjacent slits is equal to*
> *or more than 0.05 r; and*
> *a ratio of a length of an arc of the central concentric*
> *circle extending across all of the virtual region with respect to*
> *the interval of the two concentric circles in the virtual region*
> *is 3 to 6.*

Wettstein describes a circular saw blade including a plurality of perforations d.[2] The

outstanding Office Action generally asserted that Wettstein describe the above features, but

did not cite any particular portion of the reference as describing these features.

To the extent to the Office Action was relying on the figures, as discussed in MPEP

§2125, proportions of features in a drawing are not evidence of actual proportions when the

drawings are not to scale. When a reference does not disclose that the drawings are to scale

and is silent as to dimensions, arguments based on measurement of the drawing features are

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[2]See Wettstein, column 2, lines 31-33.

of little value. See *Hockerson-Halberstadt, Inc. v. Avia Group Int'l*, 222 F.3d 951, 956, 55

USPQ2d 1487, 1491 (Fed. Cir. 2000). Accordingly, as <u>Wettstein</u> does not describe that the

figures are to scale, dimensions of the figures of <u>Wettstein</u> cannot be used to reject the

pending claims.

Moreover, even assuming *arguendo* that the figures of <u>Wettstein</u> are to scale, Figure 1

appears to show that the central concentric circle located in the center of the interval of the

two concentric circles forming the virtual region is 0.58r with respect to the rotation center of

the base metal, which deviates from the range of 0.6r to 0.8r of Claim 1 of the present

application. Further, the ratio of the length of the arc of the central concentric circle

extending across all of the virtual regions with respect to the interval of the two concentric

circles in the virtual region is 1.3, which deviates from the range of 3 to 6 of Claim 1 of the

present application. Thus, even assuming *arguendo* that the figures of <u>Wettstein</u> are to scale,

<u>Wettstein</u> failed to show at least two of the above highlighted features of Claim 1.

When a disc-shaped tool comprises all of the seven features recited Claim 1, the

following specific effects are obtained: achieving the same or higher levels of rigidity and

critical rotation speed in comparison with a tool which is not provided with any slit,

enhancing durability of the tool, and suppressing generation of noise and vibration. The

circular saw blade of <u>Wettstein</u> does not include the above-specified two features, and

therefore cannot achieve such effects. Also, <u>Wettstein</u> does not give any description on

achieving the same or higher levels of rigidity and critical rotation speed in comparison with

a tool which is not provided with any slit, enhancing durability of the tool, and suppressing

generation of noise and vibration, which are the specific effects of the claimed invention.

Finally, the outstanding Office Action also asserted that all of the above features

would be obvious based on routine experimentation. However, well settled case law holds

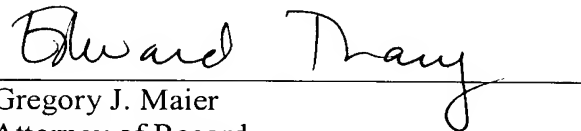that a particular parameter must first be recognized as a result-effective variable, i.e., a

variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See MPEP §2144.05. In the present case, it is respectfully submitted that Wettstein does *not* identify that any of the above highlighted relationships are result effective variables. Accordingly, the subject matter of Claims 1-3 *cannot* be considered a matter of routine experimentation in view of Wettstein.

Therefore, it is respectfully submitted that Wettstein does not teach "a plurality of virtual regions" as defined in amended Claim 1, and features cannot be considered a matter of routine experimentation in view of Wettstein. Consequently, amended Claim 1 (and Claims 2-4 dependent therefrom) is not anticipated by Wettstein and is patentable thereover.

Accordingly, the pending claims are believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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